

Docket No.: 245797US2DIV



COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313



ATTORNEYS AT LAW

RE: Application Serial No.: 10/733,364
Applicants: Yuichi MASUTANI, et al.
Filing Date: December 12, 2003
For: IPS SWITCHING LIQUID CRYSTAL DISPLAYING
APPARATUS
Group Art Unit: 2871
Allowed: October 7, 2004
Examiner: Huyen Le Ngo

SIR:

Attached hereto for filing are the following papers:

Petition Under 37 C.F.R. § 1.181(a)(3);
EXHIBIT A (Copy of 7-2-1998 Information Disclosure Statement filing papers for Appl. Serial No. 09/110,076): Date-stamped Filing Receipt, Information Disclosure Statement, PTO-1449 form, Copy of Cited Reference from Row "AR", PTO-1449 form signed by Examiner on 7-14-00;
EXHIBIT B (copy of 12-12-2003 Information Disclosure Statement filing papers for present Application: Date-stamped Filing Receipt, Information Disclosure Statement, PTO-1449 form, PTO-1449 form signed by Examiner on 4-30-04.

Our check in the amount of _____ is attached covering any required fees. In the event any variance exists between the amount enclosed and the Patent Office charges for filing the above-noted documents, including any fees required under 37 C.F.R. 1.136 for any necessary Extension of Time to make the filing of the attached documents timely, please charge or credit the difference to our Deposit Account No. 15-0030. Further, if these papers are not considered timely filed, then a petition is hereby made under 37 C.F.R. 1.136 for the necessary extension of time. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Eckhard H. Kuesters

Registration No. 28,870

Customer Number

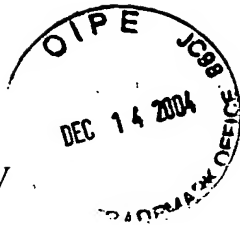
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Scott A. Elchert

Registration No. 55,149

DOCKET NO: 245797US-2DIV



IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :
YUICHI MASUTANI, ET AL. : EXAMINER: HUYEN LE NGO
SERIAL NO: 10/733,364 : GROUP ART UNIT: 2871
FILED: DECEMBER 12, 2003 : ALLOWED: OCTOBER 7, 2004
FOR: IPS SWITCHING LIQUID :
CRYSTAL DISPLAYING APPARATUS

PETITION UNDER 37 C.F.R. §1.181(a)(3)
TO INVOKE THE SUPERVISORY AUTHORITY OF THE COMMISSIONER

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

This Petition is in response to the Notice of Allowance mailed October 7, 2004.

Remarks begin on page 2 of this paper.

REMARKS

This Petition under 37 C.F.R. § 1.181 requests that the Information Disclosure Statements (IDS) filed on December 12, 2003, be fully considered and acknowledged by the Examiner.

On July 2, 1998, Applicants filed an IDS in grandparent Application Serial No. 09/110,076. All the references cited therein were considered by the Examiner, as is evidenced by copies of the IDS papers attached as Exhibit A.

On December 12, 2003, Applicants filed an IDS in the present Application (Exhibit B). The Examiner subsequently returned Applicants' PTO-1449 form with all cited references initialed in acknowledgement of consideration, except one, namely the reference cited on row "AW," which was previously cited and provided¹ in the above-mentioned grandparent Application on PTO-1449 form, row "AR," and acknowledged as being considered.

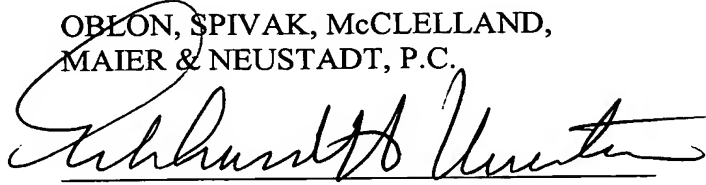
Applicants have not received an initialed copy of the filed PTO Form-1449 indicating that all of the references submitted in the December 12, 2003 Information Disclosure Statements have been considered, and respectfully request the Examiner to return a copy of the PTO-1449 form, filed in the present Application on December 12, 2004, fully initialed in acknowledgement of consideration.

¹ The requirements of 37 C.F.R. 1.98(d)(1) and (2) have been met; and, therefore, no copies of the references cited in the IDS filed in the present Application on December 12, 2004 were provided.

Although Applicants do not believe that any fee is required for the present petition,
any required fee should be charged the undersigned attorneys account no. 15-0030.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Eckhard H. Kuesters
Attorney of Record
Registration No. 28,870

Customer Number

22850

Tel: (703) 413-3000
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(OSMMN 06/04)

Scott A. Elchert
Registration No. 55,149

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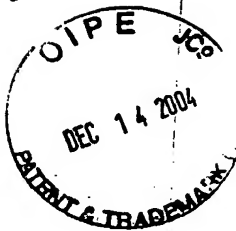


EXHIBIT A

PP/JF

O.S.&M. File No. 0057-2317-2 By MJS/msc

Serial No. NEW APPLICATION

In the Matter of the Application of Yasunori NIWANO, et al.

For IPS LIQUID CRYSTAL DISPLAYING APPARATUS

The following has been received in the U.S. Patent Office on the date stamped hereon:

- ☒ 40 pps. Specification & 8 Claims/Drawings 28 Sheets
- ☒ Combined Declaration, Petition & Power of Attorney (4 pages)
- ☐ List of Inventors' Names and Addresses
- ☒ Notice of Priority; ☒ Priority Doc. (1)
- ☒ Check for \$ 790.00; ☒ Dep. Acct. Order Form
- ☐ Assignment _____ pages/PTO-1595
- ☐ Letter to Official Draftsman
- ☐ Letter Requesting Approval of Drawing Changes
- ☐ Drawings _____ sheets
- ☒ Letter ☒ Fee Transmittal
- ☐ Amendment
- ☒ Information Disclosure Statement; ☒ PTO-1449
- ☒ Cited References (4)
- ☐ _____ Search Report
- ☐ Statement of Relevancy
- ☐ IDS/Related/List of Related Cases
- ☐ Restriction Response ☐ Election Response
- ☐ Rule 132 Declaration
- ☐ Petition
- ☐ Notice of Appeal
- ☐ Brief
- ☐ Issue Fee Transmittal
- ☒ White Advance Serial No. Postcard
- ☐ Certified Statement Re Filing in Foreign Language

Rev. 4/98



Due: 10/16/98

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Form PTO 1449
(Modified)U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

0057-2317-2

APPLICANT

Yasunori NIWANO, et al.

FILING DATE

HEREWITH

SERIAL NO.

07/110,076
NEW APPLICATIONLIST OF REFERENCES CITED BY APPLICANT
(Use Several Sheets if Necessary)

GROUP

2871

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION	
					YES	NO
HLN	AL	9-5793	1/10/97	Japan (with Brief Explanation)		X
HLN	AM	7-36058	2/7/95	Japan (with Brief Explanation)		X
HLN	AN	7-306417	11/21/95	Japan (with Brief Explanation)		X
	AO					
	AP					

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

HLN	AR	K. SAIGUSA, et al., "Display Properties of A Wide-Viewing-Angle In-Plane-Switching TFT-LCD," No. 22 of Liquid Crystal Conference 1967, Pgs. 311-312.
	AS	
	AT	
EXAMINER	[Signature]	
	DATE CONSIDERED	7/14/00

*EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

BEST AVAILABLE COPY



EXHIBIT B

OSMM&N File No. 245797US2DIV

Dept.: E/M

By: EHK/KDP/dmr

Serial No. New DIV Application

In the matter of the Application of: Yasunori NIWANO, et al.

For: IPS LIQUID CRYSTAL DISPLAYING APPARATUS

Due Date: December 12, 2003

The following has been received in the U.S. Patent Office on the date stamped hereon:

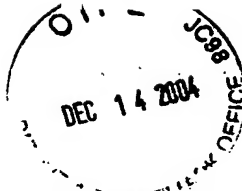
- 40 pp. Specification 8 Claims/Drawings 28 Sheets and
3 Pages Application Data Sheet
- Combined Declaration, Petition & Power of Attorney 4 Pages (copy)
- Utility Patent Application Transmittal
- Request for Priority
- Credit Card Form for \$770.00
- Dep. Acct. Order Form
- Fee Transmittal Form
- Preliminary Amendment
- Information Disclosure Statement
- PTO-1449
- White Advance Serial Number Card

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Docket No. 245797US2DIV



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Yasunori NIWANO, et al.

SERIAL NO: New DIV Application

GAU:

FILED: Herewith

EXAMINER:

FOR: IPS LIQUID CRYSTAL DISPLAYING APPARATUS

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicant(s) wish to disclose the following information.

REFERENCES

- ☒ The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references were provided in previously filed application nos. 10/200,762, filed July 24, 2002 and 09/110,076, filed July 2, 1998.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

RELATED CASES

- ☐ Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

CERTIFICATION

- ☐ Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

DEPOSIT ACCOUNT

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check or credit card payment is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Eckhard H. Kuesters

Registration No. 28,870

Katherine D. Pauley

Registration No. 50,607

Customer Number

22850

Tel. (703) 413-3000
Fax. (703) 413-2220
(OSMMN 05/03)

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Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY DOCKET NO. 245797US2DIV			SERIAL NO. New DIV Application	
LIST OF REFERENCES CITED BY APPLICANT				APPLICANT Yasunori NIWANO, et al.				
				FILING DATE Herewith			GROUP	
U.S. PATENT DOCUMENTS								
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE	
	AA	5796448	08/1998	KIM				
	AB	5835169	11/1998	KWON, ET AL.				
	AC	5995182	11/1999	WATANABE, ET AL.				
	AD	6069678	05/2000	SAKAMOTO, ET AL.				
	AE	6452656	09/2002	NIWANO, ET AL.				
	AF	5852485	12/1998	SHIMADA, ET AL.				
	AG	5907379	05/1999	KIM, ET AL.				
	AH	5949511	09/1999	PARK				
	AI	5977562	11/1999	HIRAKATA, ET AL.				
	AJ	6040887	03/2000	MATSUYAMA, ET AL.				
	AK	6069678	05/2000	SAKAMOTO, ET AL.				
	AL	6072554	06/2000	SATO				
	AM							
	AN							
FOREIGN PATENT DOCUMENTS								
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES NO			
	AO	40,931,972A	12/1997	JAPAN				
	AP	9-5793	1/10/97	JAPAN				
	AQ	7-36058	2/7/95	JAPAN				
	AR	7-306417	11/21/95	JAPAN				
	AS							
	AT							
	AU							
	AV							
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)								
	AW	K. SAIGUSA, et al., "Display Properties of a Wide-Viewing-Angle In-Plane-Switching TFT-LCD," No. 22 of Liquid Crystal Conference 1997, pgs. 311-312						
	AX							
	AY							
	AZ						<input type="checkbox"/> Additional References sheet(s) attached	
Examiner					Date Considered			
*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.								



SHEET 1 OF 1

Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY DOCKET NO. 245797US2DIV		SERIAL NO. New DIV Application	
LIST OF REFERENCES CITED BY APPLICANT				APPLICANT Yasunori NIWANO, et al.			
				FILING DATE Herewith		GROUP	
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	AB	5835169	11/1998	KWON, ET AL.			
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	AJ	6040887	03/2000	MATSUYAMA, ET AL.			
	AK	6069678	05/2000	SAKAMOTO, ET AL.			
	AL	6072554	06/2000	SATO			
	AM						
AN							
FOREIGN PATENT DOCUMENTS							
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HN	AO	40,931,972A	12/1997	JAPAN			
	AP	9-5793	1/10/97	JAPAN			
	AQ	7-36058	2/7/95	JAPAN			
	AR	7-306417	11/21/95	JAPAN			
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	AX						
	AY						
	AZ						
Examiner					<input type="checkbox"/> Additional References sheet(s) attached		
Date Considered					4/30/04		
*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



IN RE APPLICATION OF: Yasunori NIWANO, et al.

GROUP ART UNIT:

SERIAL NUMBER: NEW APPLICATION

EXAMINER:

FILED: HERewith

FOR: IPS LIQUID CRYSTAL DISPLAYING APPARATUS

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. 1.97

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Applicant(s) wish to disclose the following information.

REFERENCES

- ☒ The Applicant(s) wish to make of record the references listed on the attached Form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- ☐ A check is attached in the amount required under 37 CFR § 1.17(p).

RELATED CASES

- ☐ Attached is a list of applicant's pending applications or issued patents which may be related to the present application. A copy of the patent(s) is attached along with PTO 1449.
- ☐ A check is attached in the amount required under 37 CFR § 1.17(p).

CERTIFICATION

The undersigned certifies that

- ☐ each item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ no item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR § 1.56(c) more than three months prior to the filing of this statement.

PETITION

- ☐ Applicant(s) hereby request consideration of the attached information. A check is attached in the amount of the Petition fee required under 37 CFR § 1.17(i)(1).

DEPOSIT ACCOUNT

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check is enclosed herewith, or credit any overpayment to deposit account No. 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

COPY

Marvin J. Spivak
Attorney of Record
Registration No. 24,913

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(OSMMN 7/97)

Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO.		SERIAL NO.	
LIST OF REFERENCES CITED BY APPLICANT (Use Several Sheets if Necessary)		APPLICANT Yasunori NIWANO, et al.					
		FILING DATE HEREWITH				GROUP	

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	AA	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

FOREIGN PATENT DOCUMENTS

	AL	DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES NO	
	AL	9-5793	1/10/97	Japan (with Brief Explanation)		X
	AM	7-36058	2/7/95	Japan (with Brief Explanation)		X
	AN	7-306417	11/21/95	Japan (with Brief Explanation)		X
	AO					
	AP					

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

	AR	K. SAIGUSA, et al., "Display Properties of A Wide-Viewing-Angle In-Plane-Switching TFT-LCD," No. 22 of Liquid Crystal Conference 1967, Pgs. 311-312.
	AS	
	AT	

EXAMINER	DATE CONSIDERED
----------	-----------------

*EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Display Properties of a Wide-Viewing-Angle In-Plane-Switching TFT-LCD

In this Publication, "Display Properties of a Wide-Viewing-Angle In-Plane-Switching TFT-LCD" No. 22 of Liquid Crystal Conference 1967, Page 311 to 312, there is described a TFT- LCD in which common electrode and pixel electrode are provided on top layer by the use of staggered structure TFT.

(ホシデン・開発技研) ○ 三枝 和彦、 福本 雅一、 守屋 光雄、
 福田 利弥、 中川 卓宣、 湯川 禎三、
 雲梯 隆夫、 鶴飼 育弘、 松本 正一

DISPLAY PROPERTIES OF A WIDE-VIEWING-ANGLE IN-PLANE-SWITCHING TFT-LCD

K. Saigusa, M. Fukumoto, M. Moriya, T. Inada, T. Nakagawa, T. Yukawa, T. Unate, Y. Ukai, and S. Matsumoto
 Research & Development Center, Hosiden Corporation, Kobe-City, Japan

Display properties of our developed wide-viewing-angle 14.5-inch-diagonal IPS a-Si TFT-LCD are presented, including the viewing angle, contrast, color shift, gray-scale inversion characteristics.

1. はじめに

液晶ディスプレイは視角依存性を有し、画面の大型化や表示品位向上の要求に伴い、その改善が急務である。我々は広視野角化を目的として、IPS(In-Plane-Switching)形LCD¹⁻³⁾に注目し、そのパネル構成や部材が電気光学特性に及ぼす影響を検討してきた。^{4,5)} 本報では、これまでの検討結果を基に開発した14.5インチ型XGA対応IPS形a-Si TFT-LCD(以下、IPS形TFT-LCDと呼ぶ)の電気光学特性と表示性能について報告する。

2. 14.5インチ型XGA対応IPS形a-Si TFT-LCDの電気光学特性

(1) IPS形TFT-LCDの構造

図1に、IPS形TFT-LCDの構造を示す。a-Si TFTはトップゲート形であり、ゲート、画素、共通の各電極は、金属層からなる。ソース・ドレインと画素電極の間に共通電極が配置されている。

(2) IPS形TFT-LCDの仕様

表1にIPS形TFT-LCDの仕様を示す。表示色は26万色(64階調)、駆動電圧はTN形と同じ5Vである。コントラスト比は最大で100以上、応答時間は60ms(tr+td)である。

(3) IPS形TFT-LCDの表示特性

コントラストの視角特性については、図2の等コントラスト曲線が示すとおり、上下左右70°で10以上のコントラスト比を実現している。階調表示の再現性についても、図3に示すように上下左右70°において反転は見られない(16階調)。図4に、視野角($\theta=0^\circ \sim 60^\circ$ 、 $\phi=0^\circ \sim 360^\circ$)による色の変化を示す。TN形に比べ、色の変化は極めて小さい。液晶セルのリタデーションRを最適化することで、色の変化はさらに改善できる($R(1) < R(2)$)。

3. まとめ

今回開発したIPS形TFT-LCDは、従来のTN形に比べ極めて優れた視野角特性を示し、画面の大型化や表示品位向上の要求に対し、まさに応え得るものと言える。

参考文献

- 1) R. Soref: J. Apply. Phys., 45, 5446 (1974).
- 2) R. Kiefer, B. Weber, F. Windscheid, and G. Baur: JAPAN DISPLAY '92, 547 (1992).
- 3) K. Kondo, K. Kinugasa, N. Konishi and H. Kawakami: SID 96 DIGEST, P. 81 (1996).
- 4) 守屋、瀬山、松本、青木: 第21回液晶情報誌, 2A07, P. 154 (1995).
- 5) 松本、守屋、瀬山: 日本学術振興会 第142委員会 第65回合同研究会 資料, P. 37 (1996).

さいぐさ・ふくもと・もりや・いながさ・なめがわ・ゆかわ・うなて・うかい・まつもと

Table I. Specifications of 14.5-inch-diagonal IPS a-Si TFT-LCD

Display area	14.5 Inch diagonal
Number of pixels	1024(H)×RGB×768(V) (XGA)
Dot size	96 [μm]×260 [μm]
Number of colors	262,144 (64 gray scales)
Display mode	Normally black IPS nematic
Viewing angles	Vertical: 140° Horizontal: 140°
Contrast ratio	>100 (Max)
Driving voltage	5 [V]
Response time	60 [ms] (tr+td)

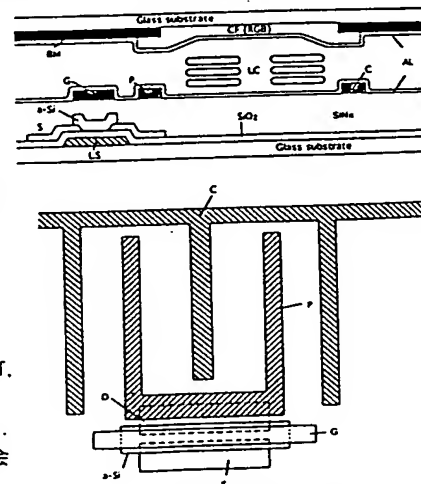


FIG. 1 Schematic structure of 14.5-inch-diagonal IPS a-Si TFT-LCD

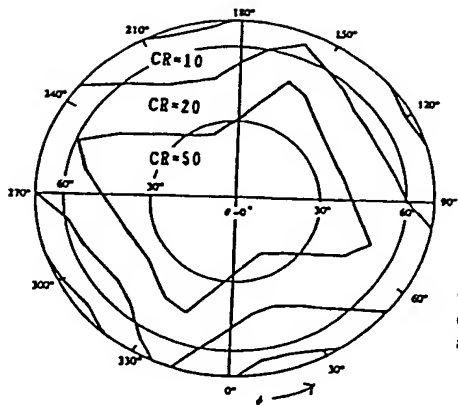


FIG. 2
Iso-contrast chart of
14.5-inch-diagonal
IPS a-Si TFT-LCD

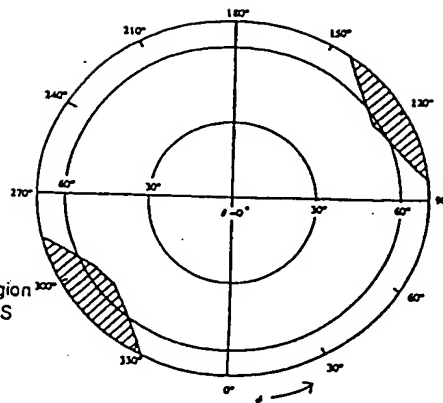


FIG. 3
Gray-scale inversion region
of 14.5-inch-diagonal IPS
a-Si TFT-LCD

FIG. 4
Color shift of 14.5-inch-diagonal
IPS a-Si TFT-LCD

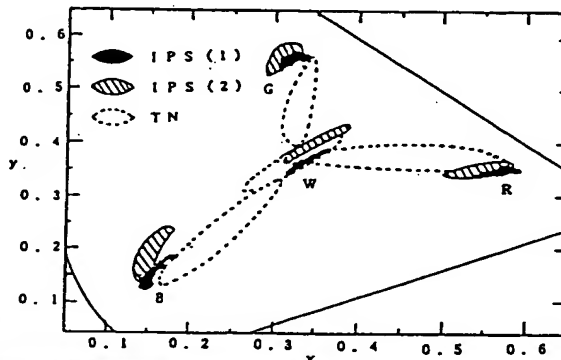


FIG. 5
Photos of 64-gray-scale video image displayed
with 14.5-inch-diagonal IPS a-Si TFT-LCD

